What is claimed is:

1. A purified and isolated PDE10 polypeptide.

2 The polypeptide according to claim 1 comprising the amino acid sequence selected from the group consisting of SEQ ID NO: 2, SEQ ID NO: 18, SEQ ID NO: 20 and SEQ ID NO: 22.

3. A polynucleotide encoding the polypeptide according to claim 1 or 2.

4. The polynucleotide according to claim 3 comprising the sequence set forth in SEQ ID NO: 1.

5. A polynucleotide encoding a human PDE10 polypeptide selected from the group consisting of:

a) the polynucleotide according to claim 4;

b) a DNA which hybridizes under moderately stringent conditions to the non-coding strand of the polynucleotide of (a); and

c) a DNA which would hybridize to the non-coding strand of the polynucleotide of (a) but for the redundancy of the genetic code.

6. The polynucleotide of claim 5 comprising the polynucleotide sequence set out in SEQ ID NO: 18.

7. The polynucleotide of claim 5 comprising the polynucleotide sequence set out in SEQ ID NO: 20.

8. The polynucleotide of claim 5 comprising the polynucleotide sequence set out in SEQ ID NO: 22.

9. The polynucleotide of claim 5 which is a DNA molecule.

10. The DNA of claim 9 which is a cDNA molecule.

11. The DNA of claim 9 which is a wholly or partially chemically synthesized DNA molecule.

12. A polynucleotide comprising the sequence set out in SEQ ID NO: 1 or a fragment thereof.

13. A polynucleotide comprising the sequence set out in SEQ ID NO: 18 or a fragment thereof.

14. A polynucleotide comprising the sequence set out in SEQ ID NO: 20 or a fragment thereof.

15. A polynucleotide comprising the sequence set out in SEQ ID NO: 22 or a fragment thereof.

16. An anti-sense polynucleotide which specifically hybridizes with the complement of the polynucleotide of claim 5.

17. A expression construct comprising the polynucleotide according to claim 5.

18. A host cell transformed or transfected with the expression construct according to claim 17.

19. A method for producing a PDE10 polypeptide comprising the steps of:

a) growing the host cell according to claim 18 under conditions appropriate for expression of the PDE10 polypeptide and

b) isolating the PDE10 polypeptide from the host cell or the medium of its growth.

20. An antibody specifically immunoreactive with the polypeptide according to claim 1 or 2.

21. The antibody according to claim 20 which is a monoclonal antibody.

22. A hybridoma which produces the antibody according to claim 21.

23. An anti-idiotype antibody specifically immunoreactive with the antibody according to claim 21.

24. A method to identify a specific binding partner compound of the PDE10 polypeptide according to claim 1 or 2 comprising the steps of:

a) contacting the PDE10 polypeptide with a compound under conditions which permit binding between the compound and the PDE10 polypeptide;

b) detecting binding of the compound to the PDE10 polypeptide; and

c) identifying the compound as a specific binding partner of the PDE10 polypeptide.

25. The method according to claim 24 wherein the specific binding partner modulates activity of the PDE10 polypeptide.

26. The method according to claim 25 wherein the compound inhibits activity of the PDE10 polypeptide.

27. The method according to claim 25 wherein the compound enhances activity of the PDE10 polypeptide.

28. A method to identify a specific binding partner compound of the PDE10 polynucleotide according to claim 5 comprising the steps of:

a) contacting the PDE10 polynucleotide with a compound under conditions which permit binding between the compound and the PDE10 polynucleotide;

b) detecting binding of the compound to the PDE10 polynucleotide; and

c) identifying the compound as a specific binding partner of the PDE10 polynucleotide.

29. The method according to claim 28 wherein the specific binding partner modulates expression of a PDE10 polypeptide encoded by the PDE10 polynucleotide.

30. The method according to claim 29 wherein the compound inhibits expression of the PDE10 polypeptide.

31. The method according to claim 29 wherein the compound enhances expression of the PDE10 polypeptide.

32. A compound identified by the method according to claim 24 or 28.

33. A composition comprising the compound according to claim 32 and a pharmaceutically acceptable carrier.